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09/519,672	03/06/2000	Toshihiko Ouchi	35.G2544	8718
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NEW YORK, NY 10112			ART UNIT	PAPER NUMBER
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DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Extensions of time may be available under the president of 3° CPR 1.13(6). In no event, however, may a reply be timely filled If the period for reply specified above is less than bility (30) days, a reply within the statisticty minimum of bility (30) days will be considered timely. If the period for reply specified above, the madurant statutiney period will apply and will origins (50) MMM This from the mailleg date of this communication for reply reply received by the Office left than three mouths after the mailing date of this communication, even if timely filled, may reduce any seamed patent term adjustment. See 3° CPR 1.704(b). Status 1) A Responsive to communication(s) filled on 23 December 2003. 2a) This action is FINAL. 2b) This action is finAl. 2b) This action is finAl. 2b) This action is finAl. 2c) In this action is finAl. 2c) In this action is finAl. 2c) In the above claim (s) Interest the first present term adjustment of the marries is closed in accordance with the practice under Ex parte Quay/e, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4 Claim(s) 81-85.89-96.98 and 99 Is/are pending in the application. 4 Of the above claim(s) is/are allowed. 6 Claim(s) Interest and service of the servic		Application No.	Applicant(s)					
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- The MAILING DATE of this communication appears on the cover sheet with the correspondence address - Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ② MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Exemition of time may be available under the previous of 3 CPR 1.13(a). In no event, however, may a reply be timely filled after SIX(b) MONTH(S) from the maining date of this corrollous. Exemition of time may be available under the previous of 3 CPR 1.13(a). In no event, however, may a reply be timely filled after SIX(b) MONTH from the maining date of this corrollous. Exemition of reply is specified above, the maximum of 3 CPR 1.13(a). In no event, however, may a reply be timely filled after the filled of the corrollous. Exemition of reply is specified above, the maximum of 3 CPR 1.13(a). In no event, however, may a reply be timely filled after the filled of the corrollous. Exemition of the reply is specified above, the maximum is reply within the stability minimum of thirty (30) days will be considered timely. Exemition of the reply is specified above, the maximum is reply within the stability minimum of thirty (30) days will be considered timely. Exemition of the state of the corrollous. Page 17 This action is produced to the corrollous. Page 28 This action is in non-fillal. Disposition of Claims Disposition of Claims Algo Claim(s) 81-85.89-96.98 and 99 Is/are pending in the application. 4) Claim(s) 81-85.89-96.98 and 99 Is/are pending in the application. 4) Claim(s) 1/2 days a claim of the state of the priority documents have been received. Car	Office Action Summary	Examiner	Art Unit					
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3.

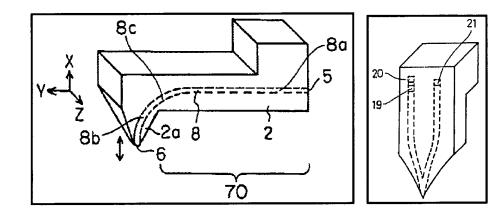
DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
- 2. Claims 81, 82 and 93-95 rejected under 35 U.S.C. 102(e) as being anticipated by Muramatsu et al. (U.S. Patent 5,969,821).



Figures 2e and 7a – U.S. Patent 5,969,821 to Muramatsu et al.

4. As per claims 81, 82, 88, 93 and 96, Muramatsu et al. disclose a surface optical apparatus comprising a surface light emitting device (8), a substrate (2) for supporting the light emitting device (8); wherein the surface light emitting device (8) includes a protrusion with an opening placed on a light emitting region of the surface light emitting device (8) and a photodetector (20, 21) to detect output light from the surface light emitting device (8 – column 7, lines 17-20); and wherein evanescent light leaks from the opening (see Fig. 2e above).

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5. As per claim 94, Muramatsu et al. disclose an apparatus wherein the supporter is shaped into a cantilever and wherein the supporter is shaped as a trapezoidal cantilever whose central portion is removed (see Figs. 2e and 7a, above).

6. As per claims 88 and 96, Muramatsu et al. disclose an apparatus wherein the surfaceemitting device comprises a surface emitting semiconductor laser (column 5, lines 28-29).

Claim Rejections - 35 USC § 103

- 7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 8. Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muramatsu et al. (U.S. Patent 5,969,821) as applied to claim 81 above, and further in view of Applicant's admitted prior art (admission).
- 9. As per claim 83, Muramatsu et al. do not explicitly disclose an apparatus wherein the opening (of the protrusion) is less than 100 nm.
- 10. Admission teaches the development of optical techniques using evanescent light from a minute opening of less than 100 nm formed at a sharp probe tip (Background of the invention, p. 1, lines 14-16).
- 11. It would have been obvious to modify the apparatus of Muramatsu et al. such that it incorporated an opening of less than 100 nm. One would have been motivated to make such a modification for the purpose of obtaining high-resolving power observation, high density

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information recording, super fine optical exposure and the like as taught by applicant's admission (Background of the invention, p. 1, lines 16-19).

- 12. Claims 84, 86 and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muramatsu et al. (U.S. Patent 5,969,821).
- 13. As per claim 84, Muramatsu et al. do not explicitly disclose an apparatus wherein the shape of the protrusion is a quadrangle pyramid.
- 14. Muramatsu et al. disclose a protrusion having a conical shape, terminating at an apex (see Fig. 2e above).
- 15. It would have been obvious to modify the apparatus of Muramatsu et al. such that it incorporated a quadrangle pyramid protrusion. One would have been motivated to make such a modification for the purpose of limiting the diameter of the light emitted from the protrusion opening as taught by Muramatsu et al. Examiner additionally notes that the protrusion of Muramatsu et al. al. would be recognized as a functional equivalent to a quadrangle pyramid protrusion.
- 16. As per claims 86 and 87, Muramatsu et al. disclose a substrate comprising silicon and corresponding thin films (column 3, line 11). Muramatsu et al. do not explicitly disclose an apparatus comprising patterned layers of silicon compounds, including silicon nitride.
- 17. It would have been obvious to modify the apparatus of Muramatsu et al. such that it comprised a silicon substrate and patterned layers of silicon compounds including silicon nitride. One would have been motivated to make such a modification so that the resulting substrate is provided with sufficient insulation to prevent the unwanted flow of charge on the supporting structure, while also providing mechanical strength for the mounting of optical components.

- 18. Claim 85 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muramatsu et al. (U.S. Patent 5,969,821) in view of Quate et al. (U.S. Patent 5,666,190).
- 19. **As per claim 85**, Muramatsu et al. do not explicitly disclose an apparatus wherein the surface-emitting device is supported by a substrate through an elastic supporter.
- 20. Quate et al. disclose an apparatus wherein the surface-emitting device is supported by a substrate through an elastic supporter (Fig. 1, #20; column 4, lines 10-14).
- 21. It would have been obvious to modify the apparatus of Muramatsu et al. such that it incorporated an elastic supporter for the surface-emitting device. One would have been motivated to make such a modification for the purpose of enabling a probe tip to be responsive to forces that cause vibrations, so a system could use the information to adjust the gap between the tip and the surface of interest as taught by Quate et al. (column 2, lines 17-20).
- Claims 90-92, 98 and 99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muramatsu et al. (U.S. Patent 5,969,821) as applied to claims 81 and 93 above, and further in view of Jain (U.S. Patent 5,212,706) and Watanabe et al. (U.S. Patent 5,825,789).
- 23. As per claims 90-92, 98 and 99, Muramatsu et al. do not explicitly disclose an apparatus wherein the surface emitting laser comprises layers of GaAs, AlGaAs, InGaAs and GaN.
- Jain discloses a surface-emitting laser comprising layers of GaAs, AlGaAs, InGaAs (see Fig. 1).
- 25. Watanabe et al. disclose a surface-emitting laser comprising layers of GaN, AlGaAs, InGaAs (column 2, lines 7-11).
- 26. It would have been obvious to further modify the apparatus of Muramatsu et al., such that it incorporated layers of GaAs, AlGaAs, InGaAs and GaN. One would have been motivated to

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make such a modification for the purpose of employing assemblies to provide multiple laser

beam outputs as taught by Jain (column 1, lines 7-10). Additionally, Watanabe et al. teach that

GaN is desirable as a layer because its rigidity is comparable to that of diamond (column 6, lines

6-8) and is therefore suitable as a support layer.

Response to Arguments

27. Applicant's arguments with respect to claims 81-85, 89-96, 98 and 99 have been

considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Courtney Thomas whose telephone number is (571) 272-2496.

The examiner can normally be reached on M - F (9 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ed Glick can be reached on (571) 272 2490. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Courtney Thomas

PERVISORY PATENT FYAMINED

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